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EXAMINER	
SAUNDERS JR, JOSEPH	
ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/840,196	BAILEY, KELLY D.	
	Examiner	Art Unit	
	Joseph Saunders	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 July 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,8,11-13,15,16,21,26 and 35-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,8,11-13,15,16,21,26 and 35-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 May 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to the communications filed July 27, 2009. Claims 1 – 3, 8, 11 – 13, 15, 16, 21, 26, and 35 – 39 are currently pending and considered below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, 8, 11 – 13, 15, 16, 21, 26, and 35 – 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okabe et al. (US 6572475), hereinafter Okabe, in view of Cascone et al. (US 6959094), hereinafter Cascone, and Chace (US 4792974), hereinafter Chace.

Claim 1: Okabe discloses a method for providing spatial sound data ("sound effects") associated with a fast moving object ("airplane or a car") in a scene for a virtual environment ("three-dimensional virtual space"), comprising: determining at least one of position, distance and direction for the object in regard to a point of view in the scene (" The main CPU 101 determines, according to position of a visual point of a virtual camera and objects in the virtual space upon generation of pictures, the volume of the audio signal, the sound image orientation, whether or not waveform processing should

be performed, and the waveform data to be used, and the main CPU 101 writes such information as a command into the RAM 142," Column7 Lines 44 – 65 and "Namely, sound effects are set in relation to the position, shape and display mode of an object (sound source object), which is assumed as producing sounds, in the three-dimensional virtual space and also in relation to the visual point position," Column 8 Line 62 – Column 9 Line 4); providing recorded spatial sound data associated with the object ("A database of the sound source (the RAM 142) stores audio data that is previously made identifiable according to the object number of a sound source object," Column 9 Lines 5 – 14), playing the recorded spatial sound data in at least one of the at least two channels of the audio file associated with the object, wherein the playing of the recorded spatial sound data simulates sound associated with the object from the point of view in the scene ("The digital mixer (not shown) of the sound processor 140 adjusts the volume of an audio signal to be output and the position of an audio image in accordance with a command from the CPU 141 and outputs such volume and the audio image position. The sound image position is a position of a sound source that a person feels in accordance with sounds outputted from the right and left speakers (or a plurality of speakers)," Column 7 Lines 13 – 26).

Okabe does not explicitly state that the recorded spatial sound data is provided in at least two channels of a single audio file, wherein the recorded spatial sound data includes spatial approaching sound data recorded in a first channel of the audio file and spatial retreating sound data recorded in a second channel of the audio file.

Okabe does describe in chronological an example of the relationship between a display parameter and an audio parameter in a virtual game space wherein car A (fast moving object) passes the players car (fast moving object) during the game (Figure 7). Okabe illustrates that different sound effects including "the engine sound of car A becomes gradually higher (Doppler Effect)" and "the engine sound becomes gradually lower (Doppler Effect)" are linked to the position, distance, or direction of the cars within the virtual game space, i.e., "the image of car A behind appearing on the review mirror becomes larger" and "car a moves further ahead", respectively (Column 11 Lines 45 – 60).

While Okabe also does not explicitly state in this example that the sounds of "the engine sound of car A becomes gradually higher (Doppler Effect)" and "the engine sound becomes gradually lower (Doppler Effect)" are recorded with the Doppler effect, Cascone teaches that it is well known in the art of computer-implemented games and simulations involving vehicle sounds where, "one known technique for generating such vehicle sounds uses a set of digitized recordings of the vehicle's sound under a few specific conditions" and further teaches "In order for a game or simulation to allow for a variety of vehicle types, a very large number of recordings must be made under a large number of different vehicle operating conditions, and all the recordings must be stored," Background of the Invention Column 1 Lines 20 - 57.

It is noted, that while Cascone goes on to teach processing sound by generating and/or synthesizing to reduce the memory storage space requirements by utilizing mixers and equalizers to independently control separate components of a sound, one of

ordinary skill in the art at the time of the invention would recognize that if memory storage space is not a limiting factor than storing very large number of recordings is advantageous in reducing further processing. Further, even in the case where generating and/or synthesizing is utilized by Cascone the processing still relies on recorded sounds.

Chace discloses a similar example where a vehicle approaches from the left side of the screen in the distance, gets closer at about mid-screen, and then moves off to the right, and further teaches a method of recording and playing back the stereo effects for the audiovisual scene. Chace teaches, "Stereo sound is generally regarded as more realistic and more pleasing to the ear because the sound can be moved around and placed in the sound field where it appears in the video picture. For example, the sound of a siren can be moved from left-to-right in the sound field as a police car speeds across the screen," Column 1 Lines 29 – 37. Chace further explains, "Accordingly, a need exists for a stereo synthesizer which can produce a steerable surround stereo signal from a composite or separate monaural sound tracks used in audiovisual programs, which can automatically maneuver the sound signal left-to-right or front-to-back in the sound field in a manner which is well-synchronized with the movement of the corresponding visual elements in the program," Column 2 Lines 47 – 57. Also, "After the sound cues have been entered, the present invention can be used as a playback system to provide stereo sound from a monaural audiovisual program or it can be used as a post-production technique to create a recorded stereo sound track from a monaural program," Column 13 Lines 40 – 51.

Finally Chace discloses,

"The level pots and the delay pots can also be used to create proximity effects. For example, in a drag racing scene where two cars are starting up (revving engines, squealing tires, etc.) just behind the camera point of view, the level may be increased to spread the sound while the delay is decreased to create the sense of close proximity. As the cars speed off to the vanishing point (i.e., center screen in the distance), the desired effect of cars heading off into the distance can be achieved by dynamically decreasing the level while increasing the delay for doppler. Helicopters can benefit from a similiar sound treatment. Short duration delay and high level will create the desired noisy wide sound when the helicopter is close up, while a receding effect is obtained by decreasing the level and increasing the duration of the delay.

Left-right positioning and panning of effects is achieved by using the pan pot as described above. Movement on an axis toward or away from the camera is achieved by use of the level pots and the delay pots. For example, when a vehicle approaches the camera, a dynamic increaee in the level accompanied by a dynamic decrease in the duration of the delay will create the sound of approaching doppler. As the vehicle recedes, an increase in the duration of the delay along with a decrease in the level will create a receding doppler and a narrowing of the sound appropriate to the visual narrowing of the vehicle as it recedes.

In the case of a vehicle which approaches from screen left in the distance, gets closer at about mid-screen, and then moves off to the right, a simple pan can be used to follow the car from its start to its end position. However, a more accurate way to follow the action would be to initially set the pan pot to the proper start position, set the short duration delay pot to the longest duration and set the short delay level pot to slightly less the maximum. As the car moves, make a track of its movements by connecting dots. When it comes straight forward, decrease the delay and increase the level. When it turns to the right and continues to approach, adjust the pan, the delay and the level simultaneously.

For a gun battle, each shot can be placed at the gun barrel when it is fired. The sound can then be moved across the sound field to the locations where the bullet hits and ricochets," Column 19 Lines 15 – 60.

Therefore, given the teachings of Okabe of linking spatial approaching sounds and spatial retreating sounds to the position, distance, or direction of the cars within the virtual game space, in addition to the teachings of Cascone illustrating that it is well known in the art of computer-implemented games to use stored recordings; it would have been obvious to one of ordinary skill in the art at the time of the invention to record the vehicle sounds as disclosed by Chace necessary to produce the approaching and retreating effects as disclosed by Okabe and Chace by storing a panned version of the sound (e.g., In the case of a vehicle which approaches from screen left in the distance, gets closer at about mid-screen, and then moves off to the right, a simple pan can be used to follow the car from its start to its end position. i.e., spatial approaching sound

data in the left channel and spatial retreating data in the right channel. That is, given the teachings of Chace, one of ordinary skill in the art of audio mixing would understand that, only approaching doppler effects would be applied to the left channel and then as the sound “moves” to the right channel or passes "mid-screen" only receding doppler would be applied to the right channel, and since the sound "moves" from left-to-right they are not present in both channels at the same time. It would be obvious to one of ordinary skill in the art, that since the goal of Chace is to have realistic effects, that if a vehicle as described by Chace was approaching from the left that you would not want to have sound coming out of a right speaker or channel, and vice versa.) in stereo as disclosed by Chace (or a surround format as mentioned by Chace which would be useful for a plurality of speakers as mentioned by Okabe, thereby allowing for e.g., a sound panned front to back i.e., in the example of Okabe spatial approaching data in the front channel and spatial retreating data in the rear channel) and cueing the playback, thereby realizing the claimed invention and aforementioned advantages.

Claim 2: Okabe, Cascone, and Chace disclose the method of claim 1, wherein the point of view is at least one of a character in the scene, a third person perspective, and another character in the scene (Okabe, player’s car, Figure 7).

Claim 8: Okabe, Cascone, and Chace disclose the method of claim 1, wherein the spatial approaching sound data is played in one sound amplification device (e.g., panned left or left channel vie left speaker), and the spatial retreating sound data is

played in another sound amplification device (e.g., panned right or right channel via right speaker) (Chace, Column 19 Lines 15 – 60).

Claim 11: Okabe, Cascone, and Chace disclose the method of claim 1, further comprising cross fading at least two channels of the audio file ("cross-fade", Cascone Figure 5).

Claim 12: Okabe, Cascone, and Chace disclose the method of claim 1, wherein the audio file further includes a format of at least one of Windows Audio Video (WAV), Audio Interchange File Format (AIFF), MPEG (MPX), Sun Audio (AU), Real Networks (RN), Musical Instrument Digital Interface (MIDI), QuickTime Movie (QTM), and AC3 (compressed MPEG AUDIO, Okabe Column 7 Lines 27 – 43).

Claim 13: Okabe, Cascone, and Chace disclose method of claim 1, wherein the virtual environment is at least one of a video game, chat room, and a virtual world ("game", Okabe, and Cascone).

Claim 35: Okabe, Cascone, and Chace disclose the method of claim 1, wherein playing the recorded spatial sound data comprises switching from playing the first channel of the audio file to playing the second channel of the audio file when the object passes from a forward position to a rearward position, or from a rearward position to a forward position, relative to the point of view (Okabe illustrates that different sound effects

including "the engine sound of car A becomes gradually higher (Doppler Effect)" and "the engine sound becomes gradually lower (Doppler Effect)" are linked to the position, distance, or direction of the cars within the virtual game space, i.e., "the image of car A behind appearing on the review mirror becomes larger" and "car a moves further ahead", respectively (Column 11 Lines 45 – 60) and Chace teaches storing a panned version of the sound in stereo or a surround format).

Claims 15, 16, 21, and 26 are substantially similar in scope to claim 1 and therefore rejected on the same grounds.

Claims 36 – 39 are substantially similar in scope to claim 35 and therefore rejected on the same grounds.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over, Okabe, Cascone, and Chace in view of Nakagawa (US 6,760,050 B1), hereinafter Nakagawa.

Claim 3: Okabe, Cascone, and Chace disclose the method of claim 1, but do not disclose the method further comprising determining a type of the object based at least in part on the point of view in the scene. Nakagawa discloses a method of producing sound in a virtual environment and discloses determining the type of object based in part on the coordinates and then uses the type, for example a sound-reflecting object or wall, and the coordinates to generate the appropriate sound data (Figure 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention

to incorporate the steps taught by Nakagawa into the invention of Okabe, Cascone, and Chace thereby allowing for sounds particular to a respective object to be audible from prescribed positions and from prescribed directions (Column 14 Lines 48 – 64).

Response to Arguments

5. Applicant's arguments filed July 27, 2009 have been fully considered but they are not persuasive. Applicant argues, “None of the cited references teach or suggest recording spatial approaching sound data in one channel of a single audio file and spatial retreating sound data in another channel of that audio file,” page 7, however the Examiner respectfully disagrees. On page 9, with regards to Chace (US 4792974), Applicant states, “Chace does not discuss storing, for example, the approaching of the car in one channel and the retreating of the car in another channel," however Chace clearly teaches, “the sound of a siren can be moved from left-to-right in the sound field as a police car speeds across the screen,” as stated on page 5 of the Office action dated April 28, 2009. Chace further discloses that the present invention can be used as "a post-production technique to create a recorded stereo sound track," and include "doppler" or "proximity effects", as stated on page 6 of the Office action dated April 28, 2009. Therefore in order to have “approaching doppler” and “receding doppler”, as described on page 7 of the office action dated April 28, 2009, recorded in a stereo sound track in the case of a siren where the sound is moved from left-to-right in the sound field. Given the teachings of Chace, one of ordinary skill in the art of audio mixing would understand that, only approaching doppler effects would be applied to the left

channel and then as the sound “moves” to the right channel or passes "mid-screen" only receding doppler would be applied to the right channel, and since the sounds "move" from left-to-right they are not present in both channels at the same time. It would be obvious to one of ordinary skill in the art, that since the goal of Chace is to have realistic effects, that if a vehicle as described by Chace was approaching from the left that you would not want to have sound coming out of a right speaker or channel, and vice versa. Therefore, it is not the position of the Office that Chace teaches as stated by Applicant, “a pan following the car while approaching includes sound in both channels in the case of stereo (or all channels in the case of multi-channel sounds), and the sound is also in both channels with the car retreating. In the example, the sounds from the car approaching is included in both channels while the car is approaching, and sounds from the car retreating is held in both channels while the car is retreating,” emphasis added by the Examiner. However, even if this was the position of the Office, Chace would indeed still teach “recording spatial approaching sound data in one channel of a single audio file and spatial retreating sound data in another channel of that audio file,” since each channel has both approaching and retreating sound, as shown by the emphasized sections. It is noted that the current rejection has been amended for further clarification as addressed above.

6. Applicant continues to argue, “Further, the approach discussed in Chace, in failing to meet the aforementioned recitations, also fails to have the advantage discussed above,” however in response to applicant's argument that the references fail

to show certain features or "advantages" of applicant's invention, it is noted that the features upon which applicant relies are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). It is further noted that while the advantages are not claimed, the combination of Okabe, Cascone, and in particular Chace disclose recording effects and cueing playback and therefore the advantages which Applicant argues of "the sounds are recorded and so there is no necessity to engage in calculations or other modifications to create the approaching/retreating sounds or to mix these sounds together," on page 7 of the remarks, is disclosed by Chace since during cued playback of the recorded effects it is not necessary to engage in calculations or other modifications to create the approaching/retreating sounds or to mix these sounds.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Saunders whose telephone number is (571) 270-1063. The examiner can normally be reached on Monday - Thursday, 9:00 a.m. - 4:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./
Examiner, Art Unit 2614

/Vivian Chin/
Supervisory Patent Examiner, Art Unit 2614